

EXPEDITED PROCEDURE REQUESTED UNDER 37 CFR § 1.116

Serial No. 09/460,174

Attorney Docket No. 99-006

B3 Sub D1

connecting said hard-wired data unit to an alternate non-public switched telephone network and to the public switch telephone network at a location local to said serving switch, dialing said temporary local directory number, and activating a connection with said serving switch.

REMARKS

Applicant thanks the Examiner for the detailed review of the application. Reconsideration and allowance are now respectfully requested. Claims 1-25 are currently pending. Claims 1-25 were rejected in the above-referenced Final Office Action. Claims 1, 10 and 16 have been amended for clarity. No new matter has been entered. Formal drawings are enclosed which contain the corrections approved by the Examiner and required with this response as part of Paper 7. A duplicate set of formal drawings, accompanied by a Letter to the Official Draftsperson, is enclosed herewith.

Rejection of Claims 17, 20 and 24 under 35 U.S.C. §112(1)

Claims 17, 20 and 24 were rejected under 35 U.S.C. §112(1) as being unsupported in the specification. Specifically, it is asserted that the concept of “a home location register that is addressable by said server, but is not associated with a home mobile switch” is not disclosed in the specification or figures. Applicant respectfully traverses this rejection.

As illustrated in Figure 1, which depicts a typical prior art system, a home mobile switch 19 is directly associated with a home location register (HLR) 23 along with a public switched telephone network (PSTN) 37. In contrast, “since the HLR used by this [Applicant’s] invention has no associated switching matrix, all mobile stations are always in a roaming state.” (See last sentence of second paragraph of page 3 of the specification.) Accordingly, the system of the present invention does not have a home mobile switch associated with the HLR.

The lack of a home mobile switch in the present invention is further emphasized in Figure 2, which depicts a server 49 connected to HLR 53 through a signal transfer point (STP) 56, but not a home mobile switch. The home mobile

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switch functions as a type of service switching point (SSP) that is a basic element of advanced intelligent networks (AIN), which include, for example, telephone networks. A SSP functions as a PSTN switch that recognizes and routes calls from the wireless communication network onto the public switched telephone network (PSTN) and vice versa. However, due to the unique way that Applicants' system functionally incorporates a wireless network with a non-PSTN and a PSTN, the present invention eliminates the need for an SSP associated with HLR 53, or home mobile switch. It should also be noted that serving switch 31 of Figure 1, or serving switch 63 of Figure 2, is not equivalent to home mobile switch 19 as it is an SSP associated with the visited location register (VLR), not the home location register (HLR).

Rejection of Claims 1, 5-7, 10-12, 14 and 16-22 under 35 U.S.C. §103(a)

Claims 1, 5-7, 10-12, 14, and 16-22 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,978,677 to Sawyer ("Sawyer") in view of U.S. Patent No. 5,889,774 to Mirashrafi et. al ("Mirashrafi"). Applicants respectfully traverse this rejection.

Claim 1, as amended, calls for a communication system that includes:

"means for locating a serving switch of a wireless communication system that was last in contact with said mobile data unit;

means for assigning a temporary local directory number to said serving switch; and

means for communicating with said mobile data unit including said hard-wired data unit being connected to an alternate non-public switched telephone network and to the public switch telephone network at a location local to said serving switch and dialing said temporary local directory number to activate a connection with said serving switch"

(emphasis added). In contrast to claim 1, a system based upon a combination of Sawyer and Mirashrafi would fail to disclose the unique aspects of the invention as called for above.

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Sawyer discloses a process of routing calls within a typical cellular telephone network. As acknowledged in the Office Action, Sawyer fails to disclose the incorporation of an alternate non-PSTN (non-public switched telephone network) or PSTN.

Mirashrafi discloses a system that utilizes the Internet and a public switched telephone network (PSTN) so as to route a voice call that originates on the Internet onto a PSTN. However, Mirashrafi does not disclose or suggest the incorporation of a wireless network into the system. The Office Action notes that Mirashrafi does make reference to the use of all three network types, specifically focusing on the fact that Mirashrafi discloses, in reference to its Figure 1, that connection 144 to handset 142 may be a wireless cellular connection. However, as will be discussed in detail below, the capability of Mirashrafi to connect an Internet-based voice call to a wireless handset does not represent a functional incorporation of a wireless network into its disclosed system so as to provide the unique features called for by claim 1. Mirashrafi can only access a wireless handset in the same manner that any other telephone residing on a public switched telephone network (PSTN) would, by simply making a call over the PSTN to the telephone number of the wireless handset.

The specific workings of the system of Mirashrafi, as illustrated in Figure 1 of the reference, will now be discussed in detail. First, a call is initiated by a client computer 102 that is connected to the Internet. This is accomplished by interacting with a webpage that incorporates a push-to-talk feature, wherein the user can “push” the button displayed on the screen to initiate a voice call to a PSTN endpoint (i.e. telephone handset 142) located at a local office, or the like, of the creators of the webpage. (See Mirashrafi, 7:45-57) The push-to-talk button is pre-associated with a bridgeport 162, a device that facilitates communication between different types of networks, which in this case, are the Internet and a PSTN. (See Mirashrafi, 7:65) The client computer 102 then identifies itself to bridgeport 162, and vice versa. (See Mirashrafi, 8:12-39) Bridgeport 162 then determines the destination PSTN extension (telephone number) for the requested call by referencing a local database or an online-service. (See Mirashrafi, 8:40-56) Once the destination PSTN extension is determined, page bridgeport 162 selects an internet/PSTN changeover server where the requested voice call will be routed off the Internet and onto the PSTN. This

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changeover server is subsequently identified as changeover bridgeport 165. (See Mirashrafi, 8:58-62) Changeover bridgeport 165 is selected from a community of bridgeports based upon certain call characteristics in an attempt to select the bridgeport with the most available bandwidth, or alternatively, the geographically closest bridgeport in order to reduce toll charges. (See Mirashrafi, 10:23-47) After the appropriate exchange of identification information between client computer 102, page bridgeport 162 and the selected changeover bridgeport 165, the net call between client computer 102 and page bridgeport 162 is terminated and a new net call between client computer 102 and changeover bridgeport 165 is initiated. (See Mirashrafi, 9:14-36) Changeover bridgeport 165 then places a voice call to the PSTN extension of handset 142, allowing the user of client computer 102 to communicate with a user of handset 142. (See Mirashrafi, 9:44-48)

Thus, Mirashrafi discloses a system for establishing a voice call from a computer on the Internet to a telephone accessible by the public switched telephone network (PSTN). Once changeover bridgeport 165 accesses the PSTN and makes the call, it becomes equivalent to any other typical telephone call made by a telephone residing on a PSTN or standard phone system. At no point in time during the processing of the Internet-based voice call does Mirashrafi communicate with or retrieve data from a wireless communication system or network, and then use that data to aid in the processing and routing of that call over a non-PSTN such as the Internet. Similarly, Sawyer also fails to disclose any type of functional incorporation of its wireless network with a non-PSTN and a PSTN so that data obtained from the wireless network is used to process and route a call over a non-PSTN. Sawyer simply discloses a new method of routing a call within a wireless network.

Accordingly, a theoretical combination of Sawyer and Mirashrafi would fail to disclose a communication system that included “means for locating a serving switch of a wireless communication system that was last in contact with said mobile data unit”, along with “means for assigning a temporary local directory number to said serving switch”, and then use this information to communicate with the mobile data unit by a hard-wired data unit “connected to an alternate non-public switched telephone network and to the public switched telephone network at a location local to said serving switch and dialing said temporary local directory number to activate a

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connection with said serving switch.” A combination of Sawyer and Mirashrafi would only provide a system where a call originating from the Internet is directed onto a PSTN. If this call were directed to a telephone number representing a wireless handset, the call would eventually be forwarded by conventional means onto the wireless network supporting the called handset, where the call would then be routed within the wireless network in the manner disclosed by Sawyer.

To further depict the differences between the invention called for by claim 1 and a theoretical combination of the cited art, consider the following example provided for illustrative purposes. Person A, who resides in Michigan (248 area code) wishes to make an Internet call to the wireless handset belonging to person B. B resides in Los Angeles (213 area code), and as such, his wireless handset has an assigned telephone number with a 213 prefix. Unknown to A, B and his wireless handset are currently in Washington, D.C. (area code 202).

If A were to call B using a system based on the theoretical combination of Sawyer and Mirashrafi, A would initiate the call from his computer 102, which would initially connect to paging bridgepoint 162, which determines the telephone number assigned to B's wireless handset, if not already known. Paging bridgeport 162 then selects a changeover bridgepoint 165 based on criteria such as bandwidth availability (for call quality) or geographical location (to reduce toll charges). A new net-based call is then established between computer 102 and the selected changeover bridgeport 165, which proceeds to connect to the PSTN and dial the 213 telephone number assigned to the wireless handset. As with any PSTN-based call to a typical wireless network, the bridgeport call is directed to the home mobile switch, or service switching point (SSP), associated with the home location register (HLR) for the wireless handset. The home mobile switch, which resides in the 213 area code region, receives the PSTN call and transfers it onto the wireless network system. Based on data maintained in the HLR and a visited location register (VLR), the wireless network determines that B's handset is not in its 213 home area, but roaming in the 202 area code region. Furthermore, the VLR servicing the area that B's handset currently resides in assigns a temporary local telephone number to the wireless handset. The wireless network acquires this temporary local number from the VLR, and forwards the call through the home mobile switch, back onto the PSTN, to the

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serving switch associated with the temporary 202-prefix number assigned to B's handset.

Based on the above example, it is seen that the Internet/PSTN call system of Mirashrafi has no functional interaction with the wireless network. It does not interact with or retrieve any information from the wireless network while it is processing the Internet-based call. Mirashrafi simply dials the fixed (i.e. 213 area code) number of a phone, not a temporary local (i.e. 202 area code) number assigned to the wireless phone. Additionally, Mirashrafi only attempts to select a changeover bridgeport that is geographically close to the home mobile switch of the wireless handset (i.e. 213 area code region), instead of a bridgeport at a location local to the serving switch (i.e. 202 area code region). Once this is done, Mirashrafi's part of the combined Mirashrafi/Sawyer system no longer plays any role in the processing of the call, which is instead entirely handled by the wireless network. In contrast, the system of claim 1 locates "a serving switch ... last in contact with said mobile unit" and then communicates with the mobile unit by using a hard-wired data unit that is "connected to an alternate non-public switched telephone network and to a public switched telephone network at a location local to said servicing switch", with the hard-wired data unit "dialing said temporary local directory number to activate a connection with said serving switch."

Similar to claim 1, independent claims 10, 16 and 19 incorporate the same unique aspects of the present invention as those just discussed. Accordingly, independent claims 1, 10, 16 and 19, along with the claims dependent therefrom, should all be considered novel and non-obvious with respect to the reference of Sawyer in view of Mirashrafi.

Furthermore, claims 17 and 20, which depend from claims 10 and 19, respectively, call for a system where said "home location register (HLR) is not associated with a home mobile switch." However, as already demonstrated above, a system based on the teachings of Sawyer and Mirashrafi would direct a call made to a wireless handset to a home mobile switch associated with a HLR.

For the reasons listed above, Applicants respectfully request that this rejection be withdrawn.

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Rejection of Claims 2 and 8 under 35 U.S.C. §103(a)

Dependent claims 2 and 8 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sawyer in view of Mirashrafi and in further view of U.S. Patent No. 5,991,621 to Alperovich ("Alperovich"). Applicants respectfully traverse this rejection.

Alperovich discloses an optimized routing of calls within a wireless telecommunications network. Similar to Sawyer, Alperovich only deals with the workings within a wireless network, it never suggests utilizing a wireless network with an alternate non-public switched network. As such, the reference fails to disclose any type of functional incorporation of a wireless network with a non-PSTN and a PSTN so that data obtained from the wireless network is used to process and route a call over a non-PSTN. Accordingly, applicants respectfully request that this rejection be withdrawn.

Rejection of Claims 3, 4, 9, 13, 15 and 23 under 35 U.S.C. §103(a)

Dependent claims 3, 4, 9, 13, 15 and 23 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sawyer in view of Mirashrafi and further in view of U.S. Patent No. 5,724,658 to Hasan ("Hasan"). Applicants respectfully traverse this rejection.

The Examiner asserts that the combination of Sawyer and Mirashrafi teach all of the claimed limitations except for the assigning of temporary local directory numbers. However, as shown above, neither Sawyer nor Mirashrafi, either by themselves or combined, disclose a communication system that functionally incorporates a wireless network with a PSTN and non-PSTN so as to provide the unique aspects offered by the independent claims that the above claims are dependent therefrom. Furthermore, the addition of Hasan does not make up for these deficiencies.

Hasan simply discloses a traditional wireless network that reserves a small quantity of telephone numbers and temporarily assigns these numbers to roaming wireless subscribers when they make a call. Hasan does not disclose or suggest the integration of a PSTN and an alternate network with a wireless networking system, let alone how this might be specifically accomplished. Accordingly, even if Hasan were

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combined with the previous references, the resultant device would still fail to teach or suggest the invention as claimed. As such, it is respectfully requested that this rejection be withdrawn.

Rejection of Claims 24 and 25 under 35 U.S.C. §103(a)

Claims 24 and 25 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sawyer in view of Mirashrafi. Applicants respectfully traverse this rejection.

Independent claim 24 calls for a method of communicating between a hard-wired data unit and a wireless unit, including:

“establishing communication between said alternate non-public switch telephone network and a wireless network”, and

“retrieving a temporary local directory number assigned to said wireless data unit by said wireless network, said temporary local directory number being relayed from said wireless network to said server of said alternate non-public switch telephone network.”

For the same reasons as discussed earlier with regards to claim 1, neither Sawyer nor Mirashrafi, individually or combined, disclose a method of communication that functionally incorporates a wireless network with a non-PSTN so as to provide the unique aspects of the invention called for by claim 24.

Furthermore, similar to dependent claims 17 and 20, independent claim 24 also calls for the wireless network to include “a home location register addressable by said server but not associated with a home mobile switch.” In contrast, a system based upon a combination of Sawyer with Mirashrafi would include a home location register that is associated with a home mobile switch. For these two reasons presented above, it is respectfully requested that this rejection be withdrawn.

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CONCLUSION

All objections and rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance, and a Notice to that effect is earnestly solicited.

Any fees associated with the filing of this paper should be identified in an accompanying transmittal. However, if any additional fees are required in connection with the filing of this paper, permission is given to charge Account No. 07-2339.

Respectfully submitted,

Date: 11/13/2002

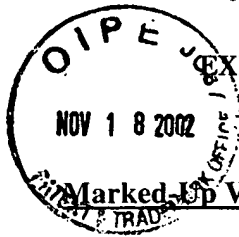
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Signature
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Marked-Up Version of Claims

Claim 1. (Once Amended) A communication system that provides an optimum connector path between a hard-wired data unit and a mobile data unit comprising:

means for locating a serving switch of a wireless communication system that was last in contact with said mobile data unit;

means for assigning a temporary local directory number to said serving switch; and

means for communicating with said mobile data unit including said hard-wired data unit being connected to an alternate non-public switched telephone network and to the public switch telephone network at a location local to said serving switch and dialing said temporary local directory number to activate a connection with said serving switch.

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Claim 10. (Twice Amended) A telephone system, comprising:
a wireless data unit;

an alternate non-public switch telephone network controlled by at least one server;

a home location register addressable by said server;

a visited location register in selective communication with said home location register, said home location register including a database showing that said visited location register was last in communication with said wireless data unit;

a serving switch of a wireless communication system that was in communication with said wireless data unit and with said visited location register; said visited location register establishing a temporary local directory number for said serving switch and forwarding said temporary local directory number to said home location register for delivery to said server; and

a hard-wired data unit; connected to said alternate network and to the public switch telephone network that uses said temporary local directory number to call said serving switch to establish communication with said wireless data unit.

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Claim 16. (Once Amended) A method for providing an optimum connector path between a hard-wired data unit and a mobile data unit comprising the steps of:

 locating a serving switch of a wireless communication system that was
last in contact with said mobile data unit;

 assigning a temporary local directory number to said serving switch;

and

 communicating with said mobile data unit including the sub-steps of
 connecting said hard-wired data unit to an alternate non-public
switched telephone network and to the public switch telephone network at a
location local to said serving switch,

 dialing said temporary local directory number, and

 activating a connection with said serving switch.